User Manual

Tablet Computer

Panther DR886EX

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Conventions

This manual is divided into individual chapter with interdependent contents. If you have experience with the use of computers, you may skip individual chapters or directly look up the respective keywords.

Pictures and tables are numbered consecutively.

Keys and key combinations are written in square brackets, e.g., [Ctrl]+[Alt]+[F1] means that you must press Control, Alt and F1 keys simultaneously.

Note

Notes contain important information in connection with the directly related text or chapter.

Attention

You will find Attention notes where data loss or notebook damage may be the result of non-compliance with this note.

Warning

Warnings inform you that personal damage or damage to the notebook or individual components thereof may be the consequence or carelessness or non-compliance with the respective warning.

EMC and Safety Notice

Federal Communications Commission Statement

This standard equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Regulatory information / Disclaimers

Installation and use of this Panther DR886 must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.
The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct

any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

IMPORTANT NOTE (CO-LOCATION)

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

Note: Descriptions made in this manual are done for standard Panther DR886EX. Depending on costumers configuration your device may vary.

CE

Products with the CE Marking comply with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

EN 55022 (CISPR 22) Radio Frequency Interference

EN 55024 (EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6,EN61000-4-8,EN61000-4-11,EN61000-3-2, EN61000-3-3) Generic Immunity Standard

EN 60950 (IEC950) Product Safety

802.11b/g Restrictions:

European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835GHz. In France, the equipment must be restricted to the 2.4465-2.4835GHz frequency range and must be restricted to indoor use.

CE Declaration of Conformity

Is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (2006/95/EC) and the Amendment Directive (93/68/EEC), the procedures given in European Council Directive 99/5/EC and 89/336EEC.

The equipment was passed. The test was performed according to the following European standards.

EN 300 328 V.1.4.1 (2003-04)

EN 301 489-1 V.1.4.1 (2002-04) / EN 301 489-17 V.1.2.1 (2002-04)

EN 50371:2002

EN 60950:2000

UL, TÜV

AC Adapter (TÜV includes EN60950 LVD)

Power Conservation

This computer consumes less power than conventional computers; however, power consumption can be further reduced by properly configuring the Power Management Setups.

It is recommended that the power saving functions be enabled even not running on battery power.

Please read the power saving features and the setting procedures described in this manual for setting your computer.

Recycling

All materials used in the construction of this unit are recyclable or environmentally friendly. No CFC or related materials were used in the manufacturing process or inside the product.

Please recycle the packing materials, and at the end of the computer's life, all other materials in accordance with the local regulations.

Please refer “Material and Recycling” for the contents of the materials.

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CHAPTER 1

Commissioning

1 Commissioning

1.1 Introduction

The Tablet Panther DR886EX allows operation under extreme environmental conditions. All interfaces and slots are covered separately. The casing is equipped with rubber bumpers and provides a maximum of protection against shock, vibration, dust and humidity. The technical details are listed in chapter 3 Specifications.

The following lists the standard scope of delivery for the notebook.

Please use this list to check the package contents for completeness. Contact dealer if one or more of the following listed items are not contained in the package.

- power cable
- external power supply unit
- driver CD
- tablet computer Panther DR886EX
- battery (may be installed)

Figure 1: Panther DR886EX scope of delivery

1.2 View

Note: Some functions are optional.

1.2.1 Front view

Figure 2: Front view

F1~F6: Function keys, blue font are alternative functions enabled by pressing Fn and the key simultaneously

Fn: To enable alternative function keys

⏻: Sleep button (refer “Timeout/Standby/Wake up”)

▼☼: Display brightness decrease

▲☼: Display brightness increase

⏻: Power button (refer “Timeout/Standby/Wake up”)

🔋: Battery charge/Heater activity indicator
ON: Charging
OFF: Battery full (off if no battery intalled)
Flash: Heater active (heater is an optional device)

🛢: HDD (Hard Disk Drive) activity indicator

☼: Power indicator

1.2.2 Rear view

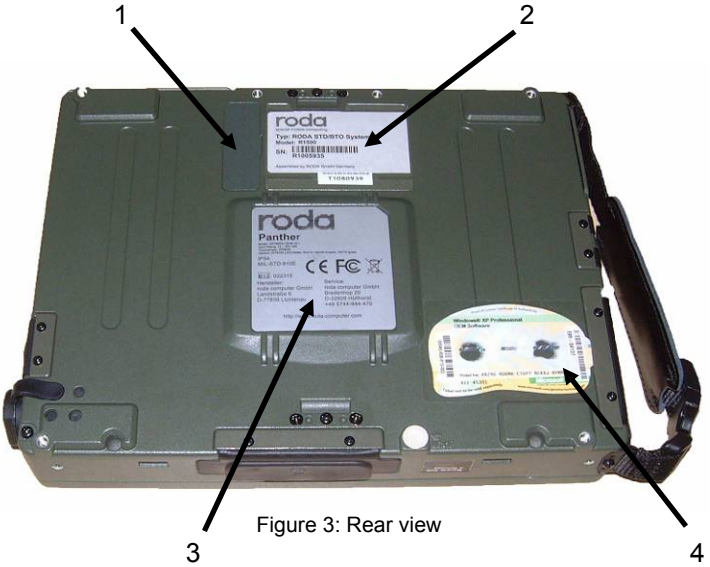


Figure 3: Rear view

1. secondary battery connector
2. roda label with serial number
3. roda type label
4. Windows licence label (optional)

1.2.3 Left-side view

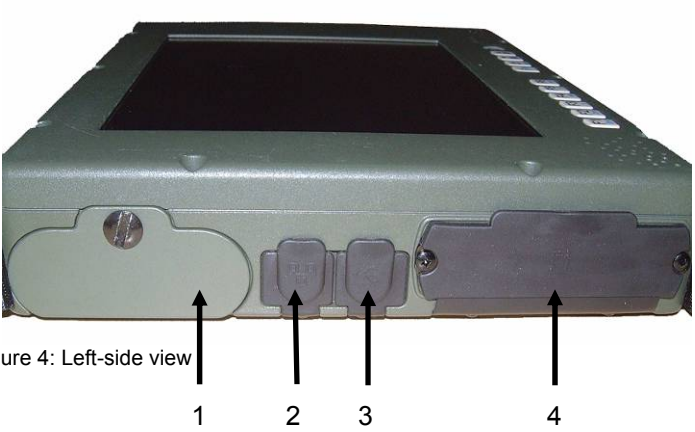


Figure 4: Left-side view

1. Battery
2. LAN
3. USB
4. PCMCIA Slot

1.2.4 Right-side view

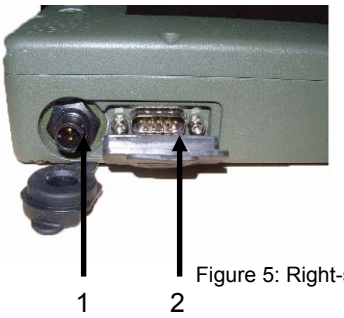


Figure 5: Right-side view

1. DC jack (2 pin for DR886EX/AC-I, 3 pin for DR886EX/AC-M)
2. Serial port (COM1)

1.2.5 Top view

Figure 6: Top view

1. Antenna (optional)
2. GPS/WLAN/Antenna/Camera module
3. HDD
4. Kensington lock slot

1.2.6 Bottom view

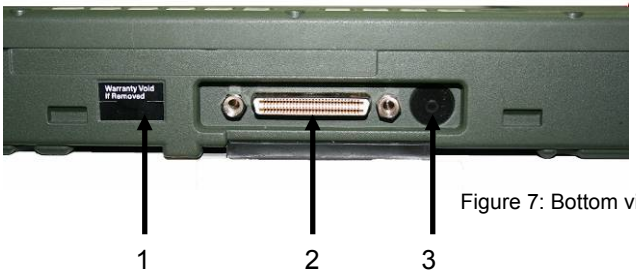


Figure 7: Bottom view

1. Warranty seal
2. Docking connector
3. External antenna jack (optional)

1.3 Preparing the notebook for commissioning

- Insert the battery module into the battery module slot and tighten the safety screw.

Note: Please use a coin to turn the screw. Using screwdrivers might damage the screw or case.

- Connect the line cable with the power-supply unit and plug the plug into the electrical outlet.

Note: The enclosed line cable complies with the specifications of the country in which the tablet was purchased. Please ensure that the line cable has been approved for the country in which the notebook will be used. Find further information on country-specific power plug version in the Annex.

- Plug the DC plug of the power-supply unit into the DC input of the tablet and tighten the knurled screw.
- Charge the tablet for at least 10 minutes.

Note: There is no memory effect with the used Lithium-Ion batteries. It is not necessary to discharge the battery completely.

- Turn the Panther DR886EX on by pressing the power button .
- Turn OFF the computer using either one of the following procedures:
    - Press power button for 4 seconds to have a “Hard” power off.

System shuts down without saving any data or parameters

- Press power button momentarily to “Standby” or “Hibernate” dependent on operating system (OS) and power scheme settings.

Note: Some operating systems may not support these functions.

- If you are using Microsoft Windows operating system click Start → Shutdown or press the Windows button (you will need an external keyboard to do so) to turn the computer off.

Note:

- *In temperatures below 0°C (32°F), the tablet may not boot immediately.*
- *The system will create a signal while the notebook is heating up. After 13 to 15 minutes, the notebook will have reached its minimum temperature and boot automatically.*
- *If required, you may skip the heating-up phase by pressing the power-on button for about 10 seconds; the system will then boot immediately. However, it cannot be guaranteed that all components will function seamlessly with power-on method.*

Driver or application software installation may be necessary for further operation.

1.4 Power-On Self Test (POST)

Figure 8: Post screen

Shortly after the switching on the tablet, a series of information will be displayed on the screen. You may now Press [F2] to start the BIOS setup of the Panther DR886EX. Check chapter BIOS Setup for further information.

The system will now run a Power-On Self Test (POST). During this test the main tablet components are checked:

- processor
- memory
- interrupt controller
- inputs and outputs
- DMA controller, clock unit and video controller

As part of this self test, the current hardware configuration is compared with the system's configuration data stored in the battery-based CMOS-RAM. In addition, all hardware components are routinely checked. If during the power-on self test a deviation from the current configuration and/or a hardware error is detected, the tablet will automatically ask you with a message to start the Setup service program (see chapter 4 BIOS Setup).

1.5 Installing the Windows operating system

When you switch on the Panther DR886EX for the first time, the Microsoft Windows XP start screen will appear.
Follow the instructions on the screen.
When switching on the computer for the first time, the enclosed software will be installed and configured. Since this process may not be interrupted, you should allow some time for it and should leave the notebook connected to the line voltage via the mains adapter. During installation, you may only reboot the Panther DR886EX when requested to do so.

Note: Only applies, if an installed Windows XP was part of delivery.

1.6 Adjusting screen brightness

You can adjust LC display brightness to your needs with the following keys:

- Increase brightness:
- Reduce brightness:

CHAPTER 2

Components and Operations

2 Components and Operation

2.1 Location

A clean and moisture-free environment is preferred. Make room for air circulation.
Avoid areas with:

- Sudden or extreme changes in temperature.
- Extreme heat.
- Strong electromagnetic fields (near television set, motor rotation area, etc.).
- Dust or high humidity.

If it is necessary to work in a hostile environment, please regularly maintain your computer by cleaning dust, water, etc. to keep it in optimal condition.

2.2 Ruggedness

The computer is designed with rugged features as vibration, shock, dust, and rain/water protection. However, it is still necessary to provide appropriate protection while operating in harsh environments. NEVER immerse the computer completely in water. Doing so may cause permanent damages. Drop may cause parts break or permanent damages.
The D-sub connector cap is for dust and shock protection only. The connector itself is sealed internally. Other I/O ports and devices must have caps tightly closed or cable inlets sealed while exposed to water or dust.
All connectors will corrode if exposed to water or moisture. Corrosion is accelerated if the power is ON. Please take proper measures in cable connection to avoid water entering into connectors. The DC jack and cables are sealed and may be operated with water splashing while attached. All port covers should be in place when no cable is attached.

2.3 Operating Systems

The computer is compatible with most operating systems (OS). However, not all functions are 100% compatible.
For example, ACPI, APM, Smart Battery, etc. are not available on DOS, Windows NT, and other non-Microsoft OS. Consequently “Standby”,

Note:
ACPI: Advanced Configurations and Power Interface
APM: Advanced Power Management

2.4 Power supply for the Panther DR886EX

The Panther may be power supplied either via the mains adapter or the integrated battery. Optionally, a DC/DC converter is available; it can be used to operate the tablet via a vehicle or similar battery.

2.4.1 Mains adapter

Figure 9 Mains adapter

The enclosed mains adapter automatically adjusts to the line voltage of the respective country. Make sure you have the correct country-specific power-plug version (see Annex B).

The mains adapter supplies the connected tablet with power and charges the integrated Lithium-Ion battery. The green operation LED

illuminates as soon as the adapter is connected with the power line, regardless whether the adapter is connected with the tablet.

For power supply to the Panther DR886EX, only use original manufacturer parts provided for this tablet. Otherwise you may cause damage to the notebook and/or externally connected peripherals. Moreover, the manufacturer's warranty will forfeit if you ignore these instructions

2.4.2 Battery operation

The exchangeable Lithium-Ion battery is the tablet's main power source when the mains adapter is not connected. As a standard, the Panther DR886EX is equipped both with a primary and a real-time clock (RTC) battery.

You may choose to purchase an additional battery for longer, power-line-independent operation. This additional battery can be mounted on the rear side.

Figure 10: Battery

RTC-Battery

The RTC (Real Time Clock) battery provides power to the integrated real-time clock and the calendar even when the notebook is switched off and not connected with the mains adapter. In addition, the RTC

battery is responsible for maintaining the system settings in BIOS. The RTC battery is also charged via the connected mains adapter. In order to avoid losing system settings when the tablet is not used for a longer period of time, you should connect the tablet with the mains adapter for a few hours a least once a month. When commissioning the tablet, please make sure that date and time settings are correct; otherwise, you will need to adjust them.

Note: If required, the RTC battery installed in the notebook should only be replaced by authorised service staff, since it requires opening the tablet.

Primary battery

The Panther's primary battery is made up of 9 Lithium-Ion cells. Before the battery is operated for the first time, the battery should be fully charged.

Charging the battery

After connecting the notebook with the mains adapter and power line, the battery will charge. The tablet can either be switched on or off during this process. The Panther's charge indicator is illuminated until the battery is fully charged. Upon completion of the charge process, the indicator LED will switch off. You may now use the tablet without power-line supply.

Monitoring battery capacity

If the tablet operates with the battery, you may monitor the remaining battery energy as follows in the Windows operation system:
Click on "Battery" symbol in the task bar, or in Windows system control, on the "Energy" symbol.
The following window will inform you on he charge status of the integrated battery/batteries.

Figure 11: Energy options (German)

Battery – Warnings

The Panther DR886EX is equipped with acoustic and optical warnings to inform you when battery capacity is coming to an end. These warnings should tell you to store your work as soon as possible in order not to lose any data.

Note: The following information refers to the standard settings in the Windows XP operating system. If another operating system is installed, the energy settings may not function properly. This particular applies to Windows NT and operating systems that are not Windows based.

Warning with low battery-charge state

If the remaining battery power drops under 10% of the overall capacity, the tablet will inform you about this situation as follows in the standard settings:

- A one-Time signal will sound

- A text will be displayed that warns you of low battery-charge state

The tablet will remain switched on. As this time, you should immediately store your work, since battery power will last for another 5 to 10 minutes only.

Warning with critical battery-charge state

If the remaining battery power has reached a rest capacity of 5%, the tablet will automatically carry out the following measures in the standard settings:

- A one-time signal will sound
- A text will be displayed that warns you of critical battery-charge state
- The tablet will switch to idle state

If you have not done so, you must now connect the tablet with the mains adapter or replace the low battery with a fully charged one.

If you switch on the Panther DR886EX after the automatic shutdown, note, that the battery will allow operation for a very short time. During the last minutes of battery power, the battery-charge state indicator will indicate this critical state.

Note: Battery performance and lifecycle depend on a number of factors, such as ambient temperature, age, number of charge and discharge cycles, etc.

Using the energy-saving mode

If you operate the tablet with a battery, you may choose to use different energy-saving functions in order to extend operation time.

Among other things, the duration of the battery depends on the following factors:

- Processor type and CPU clock frequency
- Screen brightness
- LCD switch-off
- Frequency and duration of access to the hard disk and optical drives
- Initial battery-charge status
- Usage intensity of connected and inserted additional devices, such as USB devices or Express cards that are powered via the battery

Setting the energy-saving functions

Windows XP

Under Start → System control → Performance and maintenance → Energy options, you can set the tablet's energy-saving functions.

Windows Vista

Under Start symbol → System control → Mobile PC → Energy options, you can set the tablet's energy-saving functions.

Other operating systems

If you use other operating systems, ask the manual, distributor or developer for energy-saving functions. You may use BIOS based energy-saving functions.

You can configure the tablet in the way, that, e.g., the hard disk drive or screen shut down after a defined period of time.

In addition to the regular operation mode, in which different devices may be shut down, the notebook has two different energy-saving levels: standby mode and idle state.

Standby mode

If you wish to briefly interrupt your work, you may switch off the tablet without closing the application. In standby mode, the LCD is switched off, the hard disk drive shuts down and the processor is clocked to a very low frequency. The tablet's RAM continues to be supplied with energy so that all the information remains in the RAM. When you turn the notebook back on, you can continue your work where you left off.

Idle State

When idle state is activated, all data in the tablet's RAM and the information on the screen are stored on the hard disk drive. Thereafter, the tablet shuts down. Depending on the open programs, this process may take a few seconds.

Note: Activating standby mode will save energy, when you switch the notebook on and off frequently. If you do not use the tablet for a long period of time, end the energy-saving mode and switch off the notebook.

2.5 Shutdown

The following procedure is recommended in shutting down the computer:

- Save any work you want to keep
- Make sure none of the disk drives are active (HDD, FDD, CD-ROM, DVD)
- Remove any diskettes, CD-ROMs, or other Media
- Follow the shut down procedure of you Operating System

Failure to shut down the computer properly may result in loss of data or hardware damages.

Automatic shut down is activated at battery exhaust. Be sure to finish your work and save all your data when the battery low warning appears.

2.6 Safe Guard the Computer

Figure 12: Kensington lock

Plug the Kensington lock into the slot near HDD and turn lock it. Both the computer and HDD are secured.

2.7 Replacing Modules

To remove the modules:

- Turn OFF the computer and remove all cables from the computer. Do not use Hibernate or Standby mode
- Use a coin to turn loose the screws on the modules
- Remove battery from the compartment
- Remove the HDD from he computer

Be sure to turn OFF the computer before replacing any module!

Figure 13: Replaceable modules

2.8 Re-install Modules

Gently push the module into the slot. Fasten the screw to fix the module. Make sure the O-rings are firmly fixed. No sealant is necessary for the O-rings.

2.9 Components

2.9.1 Hard Disk Drive

Figure 14: Hard disk drive case

The Hard Disk Drive (HDD) is a 2.5” type standard SATA interface data storage device. Capacity of the HDD may vary. The HDD is removable. This provides convenience and security. It can ONLY be removed while power is OFF.

⚠ NEVER drop your HDD module or expose it to high temperature, high humidity, or any hazardous environment. NEVER try to disassemble the module. Static discharge may destroy your device and data. Always pick up the modules by touching the case only.

2.9.2 Touch Screen

Panther DR886EX comes with an integrated touch screen. It facilitates direct pen input on the screen instead of mouse or touch pad. Please use the pen delivered together with the Panther and do not use your fingers to operate the touch screen. Fat naturally produced by the body may soil the touch screen, decreasing input accurateness and display quality. Use the driver software to calibrate the touch screen.

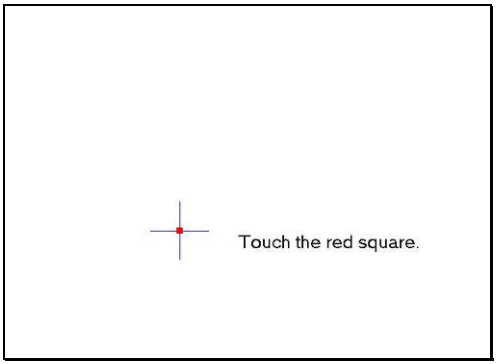


Figure 15: Touch screen calibration

Use the touch screen by moving with the pen over the surface of the touch screen. The mouse curser will follow your movements. You can perform a one-time click by briefly tipping on the touch screen once, a double click by tipping on the touch screen twice. Drag and drop is also possible, by tipping a symbol, holding it, and moving the pen in the respective direction.

2.9.3 Interfaces

PCMCIA

The computer supports 2x type-II PCMCIA card or 1x type-II PCMCIA card and 1x Express Card. To remove the card, push the eject button. The eject button can hide into the compartment by pushing it inward gently. The PCMCIA slots are on the left side of the Panther DR886EX.

USB

Also on the left side, an USB 2.0 interface is located. Remove the rubber cap to access it. The interface is compatible with USB 1.1.

RJ45

Next to the USB interface there is a RJ45 Interface for Ethernet connections. The interface is able to support 10/100/1000 Mbit/s Ethernet, depending on the configuration of the Panther DR886EX.

Sub D-9 (COM1)

On the right side of the Panther is the COM1 Port. It is a Sub D-9 interface for RS232 (standard configuration).

DC jack

The last connector on the right side is the DC jack. It can be a 3pin (DR886EX/AC-M military) or 2pin (DR886EX/AC-I industrial) jack.

Only connect the mains adapter provided by roda computer GmbH to this jack.

2.9.4 Docking connector

On the bottom side the Docking connector is located. You can connect a DockLite or an adapter cable to this connector to increase the amount of available interfaces.

Note: To avoid malfunctions keep all covers closed so the interfaces will not be damaged and/or polluted.

2.10 Optional components

2.10.1 External Backlight Keyboard

The external backlight keyboard is equivalent to a full size desktop keyboard plus extra functions. The interface is via USB port or PS/2.

Figure 16: External backlight keyboard (USB)

Track Point:

The track point is functionally equivalent to a mouse. Pushing the track point may move the cursor on the screen. The 2 buttons act same as mouse buttons.

Backlight:

Pressing [I-O] key for approximately 1 second turns keyboard backlight ON or OFF.

2.10.2 Floppy Disk Drive (FDD)

The USB 3.5” 1.44MB floppy disk drive (FDD) is almost same as conventional 3.5” FDD. The difference is interface via USB- To use FDD the operating system must support USB.

2.10.3 CD-ROM/DVD Drive

CD-ROM/DVD drive is also an USB device. The interface requirement is same as FDD. As USB function is active after Windows boot up, Windows installation via USB CD-ROM is not possible even the Windows itself supports USB. Audio CD output is via the audio jack on CD-ROM drive only.

2.10.4 Memory Card

The memory card will expand main memory to facilitate better system performance. The cards are available as following:

- 512 MB
- 1 GB
- 2 GB

Maximum memory is 4 GB. Please note 32 bit operating system can only provide ca. 3.3 GB of memory. Around 700 MB will be reserved for addressing.

2.10.5 LAN Card

Panther DR886EX can be equipped with 10/100/1000 Gbit/s Ethernet LAN cards.

2.10.6 Wireless LAN

IEEE 802.11a,b,g wireless LAN card and rugged antenna are available.

2.10.7 MDC Modem Card

V.90 56K Fax/Modem can be added to the Panther's configuration.

2.10.8 Second Battery

A Lithium-Ion rechargeable second battery may mount on the rear. It has 1.5 times capacity of primary battery and same Smart Battery compliance. The computer's internal charger can detect the second battery and perform charging accordingly.

2.10.9 Vehicle Adapter

Converting power from car lighters (12~14V) or truck batteries (24~28V). It can
power the system and charge the batteries simultaneously.

2.10.10 Heater

Built-in heater and control circuit activates heating when computer is turned ON
at temperature 0°C~-20°C (32°F~-4°F). The heating is automatically; just turn ON power the heater controller will detect temperature and take over. The power indicator flashes while heating. The computer will boot up when the internal temperature reaches safe level. It may take 5~20 minutes depends on how cold the temperature is. For temperature below –20°C (-4°F) the computer may never heat up. Plug in AC or vehicle adapter for heating as battery power may become very low at low temperature.

2.10.11 Dual Battery Charger

The charger provides two slots for the Primary and Secondary battery respectively. It allows charging of both batteries simultaneously and accepts power from AC adapter or Vehicle adapter. It takes approximately 3~4 hours to fully charge both batteries.

2.10.12 Stand Unit

Stand unit can hold the system unit and DockLite with adjustable view angle. It can be used in office or in vehicle.
There are two configuration options:

- Stand unit only to accept system unit
- Stand unit with DockLite hooked to accept system unit

Mount Stand Unit:

- Open the rubber cap on the docking connector
- Align the computer into stand unit
- Push the lever to engage and fix
- Lock the computer
- Add DockLite e.g.

2.10.13 DockLite

DockLite acts as docking unit or port enhancer. It contains more ports than the Panther DR886EX itself. Different configurations of DockLite are available.

Mount DockLite:

- Open the rubber cap on the docking connector
- Align the docking connector
- Attach DockLite
- Fix the screws

DockLite Industrial View

Top View:

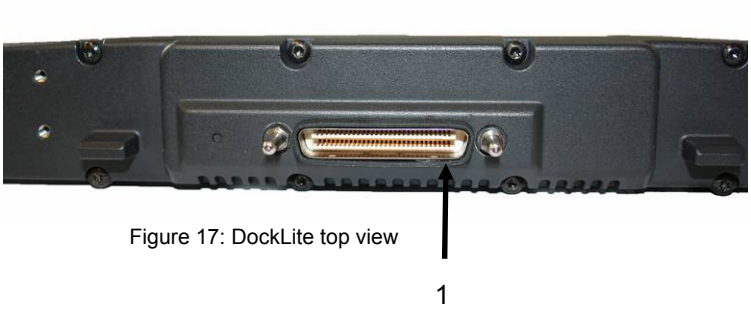


Figure 17: DockLite top view

1. Docking connector

Front View:

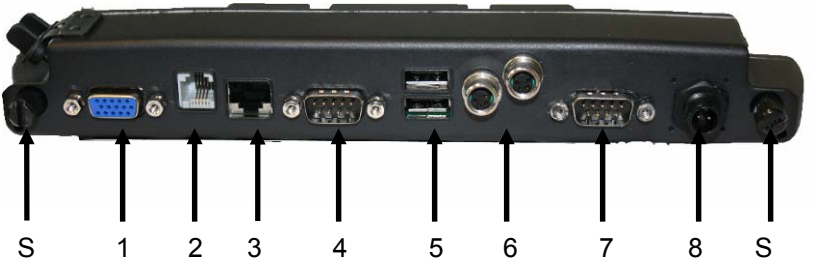


Figure 18: DockLite front view

1. Audio jacks (Microphone/Speaker)
2. RGB port
3. Modem jack (RJ11)
4. LAN jack (RJ45)
5. Serial port (COM3)
6. USB port 1,2 (standard type)
7. USB port 3,4 (proprietary sealed type)
8. Serial port (COM2)
9. DC jack

S Screws

DockLite Military View

Front View:

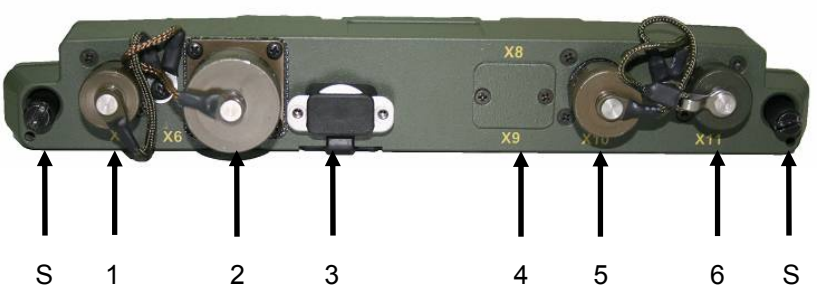


Figure 19: DockLite MIL

1. X5 interface (Ethernet)
2. X6 interface (DVI)
3. Serial port (Sub-D9 RS232)
4. X8/X9 interface (USB option)
5. X10 interface (RS232)
6. X11 interface (DC jack)

S Screws

CHAPTER 3

Specifications

3 Specifications

3.1 Components

3.1.1 System Unit

Component	Panther DR886EX
CPU	Intel Core2 Duo (ULV) U7500 1.1GHz
Level 2 Cache	2MB
Video Memory	224MB (shared Memory)
North Bridge	Intel 945GM/GME
South Bridge	Intel 82801GHM ICH7
RAM	1GB ~ 4GB 400MHz
VGA	8.4“ XGA (1024x768 Pixel) Brightness: 300 cd/m² Contrast: 400
Touch Screen	Resistive polarized Transparency: > 80%
HDD	Swappable 2.5“ SATA HDD
LAN card	Realtek
Sound	AC97 sound with Speaker
Buttons (front)	ON/OFF, LCD Brightness up/down, Standby, F1 – F6 & Fn
Interfaces (left)	2x PCMCIA Type II or 1x PCMCIA Type II und PCMCIA Express 1x USB 1x RJ45
Interfaces (right)	DC jack (2Pin/3Pin), Serial Port Sub D-9
Interfaces (rear)	Secondary battery connector
Interfaces (bottom)	Docking Connector
Interfaces (internal)	Mini PCI x 1, Mini PCI express x 1, USB 2.0 x 4, IEEE1394 x 2, Serial x 2 (TTL x 2, RS232 x 1)
Primary battery	11.1V/4800mAH Lithium-Ion Battery
Power input	DC 12V ~ 32V
Dimensions	250mm x 190mm x 46mm
Weight	1.9 Kg (depends on configuration)
Case	Magnesium
Color	black/NATO green
Environmental	MIL-STD-810, IP54

Table 1: DR886EX components

3.1.2 AC adapter

Features	Input: AC 100V ~ 240V 50/60Hz (47Hz~63Hz) Output: DC 19V ± 1V, max. 90W Also complies with military power source100V ~ 240V 400Hz Dimensions: 133mm x 58mm x 30mm Weight: 400g

Table 2: AC adapter (mains adapter)

3.1.3 Options

Component	Panther DR886EX
Secondary Battery	Available
Modem	Available
WLAN	Available
GPS	Available
HSDPA	Available
Bluetooth	Available
RS422/RS485	Available
DockLite	Available (Industrial or MIL)
Stand Unit	Available
Dual Battery Charger	Available
Isolated System	Available (not with WLAN)
MIL-STD-461	Available
LAN + Modem (MDC)	Available
LAN + WLAN	Available
LAN + WLAN + Modem	Available
LAN +WLAN + Modem + HSDPA/CDMA	Available
LAN + WLAN + HSDPA/CDMA	Available
Camera	Available

Table 3: Possible options

Note: Configuration of DockLite may vary.

3.1.4 Industry/Military Models Configurations

Component	Industry Model	Military Model
Case	Black and grey	NATO green
Rubber jacket	Black	Military green
DC power connector	2 Pin Industry connector	3 Pin Military connector
Operating temperature	0°C ~ +40°C	-20°C ~ +50°C (w Heater) 0°C ~ +50°C (w/o Heater)
EMC	CE, FCC	CE, FCC, MIL-STD-461

Table 4: Industry/Military models configuration

3.1.5 Primary and secondary Battery

Primary battery	Type: 6x 18650 Lithium-Ion cells Capacity: 11.1V 4400mAh Dimensions: 150mm x 58mm x 20 mm Weight: 300g
Secondary battery	Type: 9x 18650 Lithium-Ion cells Capacity: 11.1V 6600mAh Dimensions: 150mm x 90mm x 20 mm Weight: 500g

Table 5: Battery

3.1.6 Keypad/Keyboard

Keypad (embedded)	Function keys: F1 ~ F6
Keyboard (extern)	Number of keys: 89 Key travel: 1.5mm Function: emulates standard 101/102 keys keyboard Trackpoint: equivalent to PS/2 or USB mouse

Table 6: Keyboard/Keypad

3.1.7 Vehicle Adapter

Features	Input voltage: 12V/24V (10~32V) Input current: 2.5A/5.5A max. Output voltage: 19V ± 5% Output current: 2.8A Connector: cigarette lighter, vehicle battery Weight: 500g

Table 7: Vehicle adapter

3.1.8 Stand Unit

Features	Dimensions: 240mm x 290mm x 150mm Weight: 1.6Kg

Table 8: Stand unit

3.1.9 Material and Recycling

Component	Material
Plastic Cabinet	UL grade PC + ABS GE C2800 or C6200
Magnesium Cabinet	Magnesium alloy AZ91D
Bracket	Aluminium 5052 Steel with Nickel plating Stainless steel S304
Trackpoint, keys	Rubber
Covers	Rubber
PCB	FR-4, UL 94 V0
Battery	Rechargeable Lithium Ion cells
Packing	Carton: Unbleached paper Cushion: Recyclable PE Carrying bag: Recyclable PE Fibre Manual: Paper
Please recycle the parts according to local regulations.	

Table 9: Material and recycling

3.2 Interfaces

3.2.1 DC jack industry

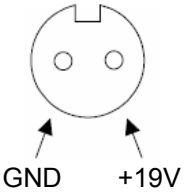


Figure 20: DC jack

Machine side: LTWS-02PMMS-LS
Mating plug: LTWAD-02AFFM-LL6000

3.2.2 DC jack military

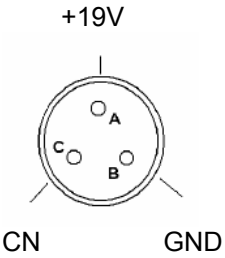


Figure 21: DC MIL

Machine side: Amphenol 62GB-12E08-33PN
Mating plug: 62GB-56T08-33SN

3.2.3 Serial port

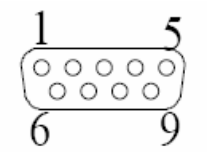


Figure 22: Serial port

Machine side: Sub D-9 jack
Mating plug: Sub D-9 plug

Pin assignment:

Pin	RS232	RS422 (Option)	RS485 (Option)
1	/CD	TXD-	Data-
2	/RXD	TXD+	Data+
3	/TXD	RXD+	(Data+)
4	/DTR	RXD-	(Date-)
5	GNR	GND	GND
6	/DSR	RTS-	NC
7	/RTS	RTS+	NC
8	/CTS	CTS+	NC
9	/RI	CTS-	NC
Shell	GND	GND	GND

Table 10: Pin assignment serial port

3.2.4 RGB port

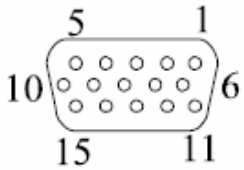


Figure 23: RGB port

Machine side: Sub D-15 jack
Mating plug: Sub D-15 plug

Pin assignment:

Pin	Assignment DR886EX	VESA (for reference)
1	RED	RED
2	GRENN	GREEN
3	BLUE	BLUE
4	GND	RES.
5	GND	GND
6	GND	RGND
7	GND	GGND
8	GND	BGND
9	GND	+5V
10	GND	SGND
11	GND	ID0
12	SDA	SDA
13	BHSYNC	BHSYNC
14	BVSYNC	BVSYNC
15	SCL	SCL

Table 11: Pin assignment RGB port

3.2.5 LAN jack

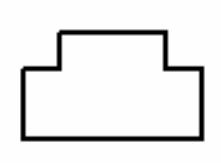


Figure 24: LAN jack

Machine side: RJ45 jack
Mating plug: RJ45 plug

Pin assignment:

Pin	10/100 Mbit/s	1000 Mbit/s
1	LANTX+	LANTX+
2	LANTX-	LANTX-
3	LANRX+	LANRX+
4	NC	LANTX1+
5	NC	LANTX1-
6	LANRX-	LANRX-
7	NC	LANRX1+
8	NC	LANRX1-

Table 12: Pin assignment LAN jack

3.2.6 USB

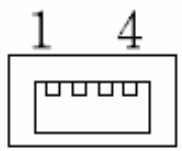


Figure 25: USB

Machine side: USB A jack
Mating plug: USB A plug

Pin assignment:

Pin	Assignment
1	Vcc
2	USB-
3	USB+
4	GND

Table 13: Pin assignment USB

3.2.7 USB (proprietary, sealed on DockLite)

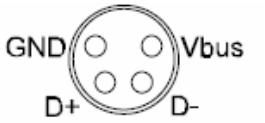


Figure 26: USB (on DL)

Machine side: proprietary lock and sealed USB connector
Mating plug: available via roda

Pin assignment:

Pin	Assignment
1	Vbus (Vcc)
2	D- (USB-)
3	D+ (USB+)
4	GND

Table 14: Pin assignment USB proprietary on DL

3.2.8 Docking Connector

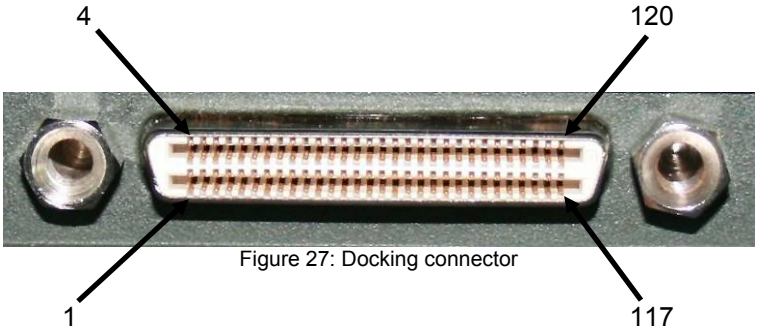


Figure 27: Docking connector

Machine side: Molex 52755-1200R
Mating plug: Molex 52758-120RR

Pin assignment:

PIN	Assignment	Notes	Pin	Assignment	Notes
1	VA	AC input	61	IDE_PDDREQ	2nd IDE
2	VA	AC input	62	IDE_PDD3	2nd IDE
3	VB	Prim. Battery (res.)	63	IDE_PDIORDY	2nd IDE
4	VB	Prim. Battery (res.)	64	V_3	+3.3V 400mA max.
5	VA	AC input	65	GND	
6	P0	1394 interface	66	IDE_PDD4	2nd IDE
7	VB	Prim Battery (res.)	67	IDE_PDD6	2nd IDE
8	V_5	+5V 400mA max.	68	IDE_PDD5	2nd IDE
9	reserve		69	IDE_PDD7	2nd IDE
10	P1	1394 interface	70	IDE_PDCS1#	2nd IDE
11	POWER_SW	ON/OFF	71	IDE_PDD8	2nd IDE
12	V_5	+5V 400mA max.	72	V_3	+3.3V 400mA max
13	EXT_ANT_MUX	External Antenna (res)	73	IDE_PDD9	2nd IDE
14	P2	1394 interface	74	IDE_PDA0	2nd IDE
15	PSD_DDC	DVI (res.)	75	IDE_PDD10	2nd IDE
16	V_5	+5V 400mA max.	76	IDE_PDA1	2nd IDE
17	GND		77	IDE_PDD11	2nd IDE

PIN	Assignment	Notes	Pin	Assignment	Notes
18	P3	1394 interface	78	IRQ14	2nd IDE
19	PSD_DDC	DVI (res.)	79	IDE_PDD12	2nd IDE
20	P4	1394 interface	80	V_3	+3.3V 400mA max.
21	reserved		81	GND	
22	P5	1394 interface	82	IDE_PDDACK#	2nd IDE
23	reserved		83	IDE_PDD13	2nd IDE
24	P6	1394 interface	84	IDE_PDDOIR#	2nd IDE
25	PLAN_BI D3+	GLAN	85	IDE_PDD14	2nd IDE
26	P7	1394 interface	86	IDE_PDDIOW#	2nd IDE
27	PLAN_BI D3-	GLAN	87	IDE_PDD15	2nd IDE
28	reserved		88	CD_R	2nd IDE
29	PLAN-BI D4+	GLAN	89	IDE_PDCS3#	2nd IDE
30	PLAN-BI D4-	GLAN	90	PLT_RST#	PLT_RST
31	RTXD3#	COM3 (RS232)	91	IDE_PDA2	2nd IDE
32	RDCD3#	COM3 (RS232)	92	CD_L	2nd IDE
33	GND		93	USB_PP2	USB interface
34	RDSR3#	COM3 (RS232)	94	USB_PN2	USB interface
35	RCTS3#	COM3 (RS232)	95	DVI-TXC-	DVI (res.)
36	RRXD3#	COM3 (RS232)	96	DVI-TXC+	DVI (res.)
37	RDTR3#	COM3 (RS232)	97	GND	
38	RRTS3#	COM3 (RS232)	98	VSYNC	CRT (VGA)
39	RRI3#	COM3 (RS232)	99	DVI-TXC2-	DVI (res.)
40	DCD3#	COM2 (TTL)	100	DVI-TXC2+	DVI (res.)
41	TXD3#	COM2 (TTL)	101	EXT_SPK_IN	External Speaker
42	DSR3#	COM2 (TTL)	102	DDC2BD	CRT (VGA)
43	CTS3#	COM2 (TTL)	103	DVI-TXC1-	DVI (res.)
44	RXD3#	COM2 (TTL)	104	DVI-TXC1+	DVI (res.)
45	DTR3#	COM2 (TTL)	105	LAN-RX D2-	GLAN
46	RTS3#	COM2 (TTL)	106	DDC2BC	CRT (VGA)
47	RI3	COM2 (TTL)	107	DVI-TX0-	DVI (res.)
48	GND		108	DVI-TX0+	DVI (res.)
49	GND		109	LAN-RX D2+	GLAN
50	Line_inR	Sound	110	Ext_SP-Right	Sound
51	EK_CLK	PS/2 Keyboard	111	Ext-SP-Left	Sound

Pin	Assignment	Notes	Pin	Assignment	Notes
52	EK_DATA	PS/2 Keyboard	112	HSYNC	CRT (VGA)
53	MUCLK	PS/2 Mouse	113	LINE-	Modem
54	PM_SLP_S3#	Suspend (res.)	114	LAN-TX D1-	GLAN
55	MUDATA	PS/2 Mouse	115	MIC-IN	Sound
56	IDE_PDD0	2nd IDE	116	CRT_R	CRT (VGA)
57	Line_inL	Sound	117	LINE+	Modem
58	IDE_PDD1	2nd IDE	118	LAN-TX D1+	GLAN
59	CD-DASP	2nd IDE	119	CRT_G	CRT (VGA)
60	IDE_PDD2	2nd IDE	120	CRT_B	CRT (VGA)

Table 15: Pin assignment docking connector

3.2.9 DockLite MIL

X5 - Ethernet

Figure 28: MIL DL X5

Machine side: Amphenol SJT00RT-08-35SN014
Mating plug: SJTG06RT-08-35PN014

Pin assignment:

Pin	Assignment
1	TX+
2	TX-
3	RX+
4	nc
5	nc
6	RX-

Table 16: Pin assignment MIL DL X5

X6 – DVI

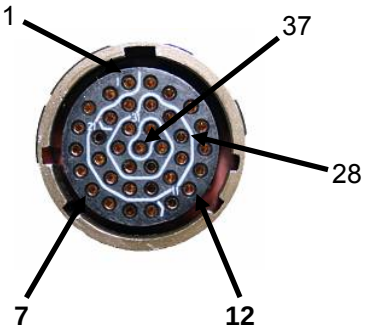


Figure 29: MIL DL X6

Machine side: Amphenol SJT00GS-14-35SN014
Mating plug: SJTG06GS-14-35PN014

Pin assignment:

Pin	Assignment
1	TDMS TX2 N
2	TDMS TX2 P
3	TMDS 2 GND
4	PWRSW
5	nc
6	DDC Clock (SCL)
7	DDC DATA (SDA)
8	nc
9	TDMS TX1 N
10	TDMS TX1 P
11	TDMS 1 GND
12	Speaker left
13	Speaker right
14	DVI +5V/50mA
15	GND
16	Hot Plug Detect (HTPLG)
17	TDMS TX0 N
18	TDMS TX0 P
19	TDMS 0 GND

Pin	Assignment
20	USB N (TX)
21	USB P (TX)
22	GND
23	TDMS CLK P
24	TDMS CLK N
25	COM(n) TX (optional)
26	COM(n) RX (optional)
27	nc
28	COM(n) TX (optional)
29	GND
30	GND
31	nc
32	nc
33	nc
34	nc
35	nc
36	nc
37	nc

Table 17: Pin assignment MIL DL X6

X7 – RS232 port

See Chapter 3.2.4

X8, X9 – USB port

See Chapter 3.2.6

X10 – MIL RS232

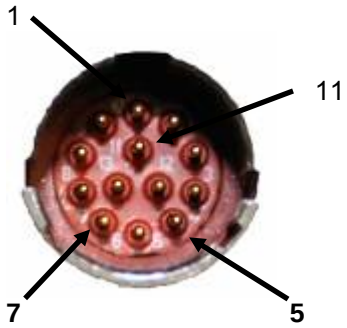


Figure 30: MIL DL X10

Machine side: Amphenol SJT00RT-10-35PN014
Mating plug: SJTG06RT-10-35SN014

Pin assignment:

Pin	Assignment
1	/CD
2	/RXD
3	/TXD
4	/DTR
5	/GND
6	/DSR
7	/RTS
8	/CTS
9	/RI
10-13	nc

Table 18: Pin assignment MIL DL X10

X11 – DC

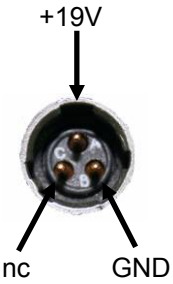


Figure 31: MIL DL X11

Machine side: Amphenol 62EN-12E8-33P
Mating plug: 62GB-56T08-33SN

3.3 Environmental Ratings

3.3.1 MIL-STD-810

Item	Test Criteria
Low pressure (Altitude)	According to MIL-STD-810F, Method 500.4 procedure I, II • Operating : 4.572m (15,000ft) • Non Operating : 12.180m (40,000ft
High temperature	According to MIL-STD-810F, Method 501.4 procedure I, II • Operating : +50°C (+122°F) • Non Operating : +70°C (+158°F)
Low temperature	According to MIL-STD-810F, Method 502.4 procedure I, II • Operating : -20°C (-4°F) with heater (0°C without heater) • Non Operating : -40°C (-40°F)
Temperature shock	According to MIL-STD-810F, Method 503.4 procedure I • Operating : -20°C ~ +60°C (-4°F ~ +140°F)
Rain	According to MIL-STD-810F, Method 506.4 procedure I • Operating : 276kPa (40 psig), 5 surfaces, 40 minutes/surface

Item	Test Criteria
Humidity	According to MIL-STD-810F, Method 507 procedure I • Operating : (Aggravated) 24 hours/cycle, total of 10 cycles Between 30°C (86°F) and 60°C (140°F) with the relative humidity at 95% constant)
Salt Fog	According to MIL-STD-810F, Method 509.4 procedure I Non Operating: Salt concentration of 5+-1%, 24 hours wet + 24hours dry/cycle. Total of 2 cycles/96 hours
Vibration	1. According to MIL-STD-810D, Method 514.3 category 1 Tracked vehicle vibration • Operating : M548 tracked vehicle 2. According to MIL-STD-810D, Method 514.5 category 14 procedure I Helicopter vibration OH58A/C • Operating : OH58A/C helicopter 3. According to MIL-STD-810D, Method 514.5 category 20 procedure I Composite wheeled vehicle vibration • Operating : Figure 514.5C-3 and Table 514.5C-VII
Shock	According to MIL-STD-810F, Method 516.5 procedure I • Operating : Figure 516.5-10, Table 516.5C-II, 40g, 11ms, terminal-peak saw tooth shock pulse
Solar radiation	According to MIL-STD-810F, Method 505.4 procedure I • Non Operating : Diurnal cycle A1 worldwide deployment
Explosive Atmosphere	According to MIL-STD-810F, Method 511.4 procedure I • Operating test

Table 19: MIL-STD-810

3.3.2 IEC IP

Standards	Parameters
IEC 60529 IP5x Dust-tight	Powder type: Talcum Dust quantity: 2kg Chamber size: 1m³ Test duration: 8h
IEC 60529 IPx4 Water spray (water jet)	Tube radius: 400mm Water flow: 1.8l/min Number of open holes: 25 Test duration: 10min

Table 20: IEC IP

3.3.3 MIL-STD-461

Standards	Parameters
MIL-STD-461E (M-models only)	CE102: Conducted Emissions, Power Leads, 10KHz~10MHz CS101: Conducted Susceptibility, Power Leads, 30Hz~150KHz CS114: Conducted Susceptibility, Bulk Cable Injection, 10KHz~200MHz CS115: Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation CS116: Conducted Susceptibility, Damper Sinusoidal Transients, Cable and Power Leads, 10KHz to 100MHz RE101: Radiated Emissions, Magnetic Field, 30Hz~100KHz RE102: Radiated Emissions, Electric Field, 10KHz~18GHz RS101: Radiated Susceptibility, Magnetic Field, 30Hz~100KHz RS103: Radiated Susceptibility, Electric Field, 2MHz~40GHz

Table 21: MIL-STD-461

CHAPTER 4

BIOS Setup

4 BIOS Setup

Press **[F2]** at boot up to enter BIOS setup. Use arrow keys to select options and **[+/-]** to modify them. When finished, move to "**Exit**" and press **[Enter]** then confirm save by pressing **[Y]**.

Note: The contents may vary depending on computer configurations.

4.1 The General Help Window

Pressing **<F1>** or **<Alt-H>** on any menu brings up the General Help window that describes in detail the keys and functions for setup. The scroll bar on the right of any window indicates that there is more than one page of information in the window. Use **<PgUp>** and **<PgDn>** to display all the pages. Pressing **<Home>** and **<End>** displays the first and last page. Pressing **<Enter>** displays each page and then exits the window. Press **<Esc>** to exit the current window.

4.2 Main Menu

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**
				Item Specific Help	
System Time:		**[16:19:20]**			
System Date:		[03/02/2007]		<Tab>, <Shift-Tab>, or <Enter> selects field	
Legacy Diskette A:		[1.44/1.25MB 3½"]			
• IDE Channel 0 Master		[None]			
• IDE Channel 0 Slave		[None]			
• SATA Port 0		[None]			
• SATA Port 1		[None]			
System Memory:		640 KB Extended Memory: 522752 KB			
F1 Help	↑↓ Select Item	–/+	Change Values		F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu		F10 Save and Exit

Table 22: BIOS main menu

Main Menu Selections

You can make the following selections on the Main Menu. Use the sub menus for other selections.

Feature	Options	Description
System Time	HH:MM:SS	Set the system time Hour, Minute, Second.
System Date	MM/DD/YYYY	Set the system date Month, Day, Year.
Diskette 1	3 ½" 1.44MB, Disabled	Select the type of floppy-disk drive installed in your system.
System Memory	N/A	Displays amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.

Table 23: Main menu options

4.3 IDE Channel 0 Master Sub-Menu

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**
	IDE Channel 0 Master		[None]	Item Specific Help	
Type:			**[Auto]**	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.	
Multi-Sector Transfers:			[Disabled]		
LBA Mode Control:			[Disabled]		
32 Bit I/O:			[Disabled]		
Transfer Mode:			[Standard]		
Ultra DMA Mode:			[Disabled]		
F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults	
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit	

Table 24: IDE channel 0 master sub-menu

IDE Channel 0 Master Sub-Menu Selections

You can make the following selections on the IDE Channel 0 Master sub menu.

Feature	Options	Description
Type	Auto None ATAPI Removable CD-ROM IDE Removable Other ATAPI User	Auto = autotypes hard-disk drive installed here. None ATAPI Removable = removable disk drive is installed here CD-ROM = a CD-ROM drive is installed here IDE Device Other ATAPI User = you enter parameters of hard-disk drive installed at this connection
32 Bit I/O	Disabled Enabled	This setting enables or disables 32 bit IDE data transfers.

Table 25: IDE channel 0 master sub-menu selections

4.4 IDE Channel 0 Slave Sub-Menu

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**
	IDE Channel 0 Slave		[None]	Item Specific Help	
Type:			**[Auto]**	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.	
Multi-Sector Transfers:			[Disabled]		
LBA Mode Control:			[Disabled]		
32 Bit I/O:			[Disabled]		
Transfer Mode:			[Standard]		
Ultra DMA Mode:			[Disabled]		
F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults	
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit	

Table 26: IDE channel 0 slave sub-menu

IDE Channel 0 Slave Sub-Menu Selections

You can make the following selections on the IDE Channel 0 Slave sub menu.

Feature	Options	Description
Type	Auto	Auto = autotypes hard-disk drive installed here.
	None	None
	ATAPI Removable	ATAPI Removable = removable disk drive is installed here
	CD-ROM	CD-ROM = a CD-ROM drive is installed here
	IDE Removable Other ATAPI	IDE Device Other ATAPI
	User	User defined
32 Bit I/O	Disabled	This setting enables or disables 32 bit IDE data transfers.
	Enabled	

Table 27: IDE channel 0 slave sub-menu selections

4.5 SATA Port 0 Sub-Menu

Phoenix TrustedCore(tm) Setup Utility				
Main	**Advanced**	**Security**	**TPM State**	**Boot**
	SATA Port 0	[None]		Item Specific Help
Type:		**[Auto]**		User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
Multi-Sector Transfers:		[Disabled]		
LBA Mode Control:		[Disabled]		
32 Bit I/O:		[Disabled]		
Transfer Mode:		[Standard]		
Ultra DMA Mode:		[Disabled]		
F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Table 28: SATA port 0 sub-menu

SATA Port 0 Sub-Menu Selections

You can make the following selections on the SATA Port 0 sub menu.

Feature	Options	Description
Type	Auto	Auto = autotypes hard-disk drive installed here.
	None	None
	ATAPI Removable	ATAPI Removable = removable disk drive is installed here
	CD-ROM	CD-ROM = a CD-ROM drive is installed here
	IDE Removable	IDE Device
	Other ATAPI	Other ATAPI
	User	User defined
32 Bit I/O	Disabled Enabled	This setting enables or disables 32 bit IDE data transfers.

Table 29: SATA port 0 sub-menu selections

4.6 SATA Port 1 Sub-Menu

Phoenix TrustedCore(tm) Setup Utility				
Main	**Advanced**	**Security**	**TPM State**	**Boot**
	SATA Port 1	[None]		Item Specific Help
Type:		**[Auto]**		User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
Multi-Sector Transfers:		[Disabled]		
LBA Mode Control:		[Disabled]		
32 Bit I/O:		[Disabled]		
Transfer Mode:		[Standard]		
Ultra DMA Mode:		[Disabled]		
F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Table 30: SATA port 1 sub-menu

SATA Port 1 Sub-Menu Selections

You can make the following selections on the SATA Port 1 sub menu.

Feature	Options	Description
Type	Auto	Auto = autotypes hard-disk drive installed here.
	None	None
	ATAPI Removable	ATAPI Removable = removable disk drive is installed here
	CD-ROM	CD-ROM = a CD-ROM drive is installed here
	IDE Removable Other ATAPI	IDE Device Other ATAPI
	User	User defined
32 Bit I/O	Disabled Enabled	This setting enables or disables 32 bit IDE data transfers.

Table 31: SATA port 1 sub-menu selections

4.7 Advanced Menu

Incorrect settings may cause system malfunction.
To correct it, restore the Setup Defaults with <F9>.

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**

		Item Specific Help
Legacy USB Support:	[Enabled]	
Summary screen:	[Disabled]	
Boot-time Diagnostic Screen:	**[Enabled]**	Display the diagnostic screen during boot
QuickBoot Mode:	[Enabled] Ext Memory	
Testing	[Just zero it]	
IGD – Boot Type:	[VBIOS Default]	
PS/2 Mouse	[Auto Detect]	
PCI Express – Root Port 1:	[Enabled]	
USB – Device 29, Function 7:	[Enabled]	
Passive Cooling Trip Point:	[79 C]	
• SIO SMC227 CONFGURATION		

F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Table 32: Advanced Menu

Advanced Menu Selections

You can make the following selections on the Advanced Menu.

Feature	Options	Description
Legacy USB Support	Disabled Enabled	Enable support for Legacy Universal Serial Bus
Summary screen	Disabled Enabled	Display system configuration on boot
Boot-time Diagnostic Screen	Disabled Enabled	Display the diagnostic screen during boot
QuickBoot Mode	Disabled Enabled	Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system
Extended Memory Testing	Normal Just zero it None	Determines which type of tests will be performed on extended memory (above 1M)

Feature	Options	Description
IGD – Boot Type	VBIOS Default CRT LFP CRT+LFP TV LFP-SDVO EFP TV-SDVO CRT+LFP-SDVO CRT+EFP	Select the Video Device that will be activated during POST
PS/2 Mouse	Disabled Enable Auto Detect OS Controlled	'Disabled' prevents any installed PS/2 mouse from functioning, but frees up IRQ 12 'Enabled' forces the PS/2 mouse port to be enabled regardless if a mouse is present 'Auto Detect' will enable the PS/2 mouse only if present 'OS Controlled' only displayed if the OS controls the mouse
PCI Express – Root Port 1	Disable Enable Auto	Disabled – Port always disabled. Enabled – Port always enabled. Auto
USB – Device 29, Function 7	Disabled Enabled	Control USB 2.0 functionality
Passive Cooling Trip Point	Disabled 15 C 23 C . . 111 C 119 C	This value controls the temperature of the ACPI Passive Trip Point – the point in which the OS will begin throttling the CPU. NOTE: When the DTS is enabled, only values below 97C are valid.

Table 33: Advanced Menu selections

4.8 SIO SMC227 CONFIGURATION Sub-Menu

Incorrect settings in RS485/RS422 of COMx mode may cause SIO
component damage. Act with caution before setup.

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**
SIO SMC227 CONFIGURATION				Item Specific Help	
COM1 port:			**[3F8-IRQ 4]**	Configure COM1 using device options:	
COM1 mode:			[RS232]		
COM2 port:			[2F8-IRQ 3]	[Disabled] No configuration	
COM2 mode:			[RS232]		
COM3 port:			[3E8-IRQ 10]	[3F8-IRQ 4] Set the base I/O address for COM1	
COM3 mode:			[RS232]		
COM4 port:			[2E8-IRQ 5]		
COM4 mode:			[RS232] Printer1: [X]		
Printer1 mode:			[Standard]		
Printer2:			[Disabled]		
F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults	
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit	

Table 34: SIO SMC227 Menu

SIO SMC227 CONFIGUARTION Sub-Menu Selections

You can make the following selections on the SIO SMC227 CONFIGURATION
sub menu.

Feature	Options	Description
COM1 port	Disabled 3F8-IRQ 4	Disables COM1 Standard I/O address
COM1 mode	RS485 RS422 RS232 TTL1	External RS485 device External RS422 device External RS232 device Internal device
COM 2 port	Disabled 2F8-IRQ 3	Disables COM2 Standard I/O address

Features	Options	Description
COM2 mode	RS485 RS422 RS232 TTL2	External RS485 device External RS422 device External RS232 device Internal device
COM3 port	Disabled 3E8-IRQ 10	Disables COM3 Standard I/O Address
COM3 mode	RS485 RS422 RS232 TTL3	External RS485 device External RS422 device External RS232 device Internal device
COM4 port	Disabled 2E8-IRQ 5	Disables COM4 Standard I/O address
COM4 mode	RS485 RS422 RS232 TTL4	External RS485 device External RS422 device External RS232 device Internal device
Printer1	Disabled 378-IRQ 4	Disables Printer1 Standard I/O address
Printer 1 mode	Standard ECP EPP	Standard ECP EPP
Printer2	Disabled 3BC	Disables Printer2 Standard I/O address

Table 35: SIO SMC277 menu selections

4.9 Security Menu

If you forget user/supervisor password, you have to send the computer back to the manufacturer to have EEPROM replaced.

Phoenix TrustedCore(tm) Setup Utility				
Main	**Advanced**	**Security**	**TPM State**	**Boot**

Processor Serial Number	**[Disabled]**	Item Specific Help
Fixed disk boot sector:	[Normal]	
Diskette access:	[Supervisor]	Controls detection of Processor Serial No. System must be reset or restarted from power-on for settings to take effect.
USB Interface:	[Enabled]	
AC97 Audio Interface:	[Auto]	
AC97 Modem Interface:	[Auto]	
Cardbus/1394 Interface	[Auto]	
• RF Security Control:		

F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Table 36: Security menu

Security Menu Selections

You can make the following selections on the Security Menu.

Features	Options	Description
Processor Serial Number	Disabled Enabled	Controls detection of Processor Serial No. System must be reset or restarted from power-on for settings to take effect
Fixed disk boot sector	Normal Write Protect	Write protects the boot sector on the hard disk to protect against viruses
Diskette access	Supervisor User	Control access to diskette drives
USB Interface	Disabled Enabled	Control the listed USB Functions by setting the item to the desired value
AC97 Audio Interface	Disabled Auto	Control Detection of the AC97 Audio Device Auto = AC97 Audio will be enabled if present, disabled otherwise. Disabled = AC97 Audio will be unconditionally disabled, regardless of presence.
AC97 Modem Interface	Disabled Auto	AC97 Modem Device Function Disable/Enable/Auto
Cardbus/1394 Interface	Disabled Auto	Cardbus Device Function Disable/Enable/Auto

Table 37: Security menu selections

4.10 RF Security Control Sub-Menu

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**
		RF Security Control:			Item Specific Help
Wireless Lan:			**[Disabled]**		Wireless Lan Control
GPRS:			[Disabled]		
GPS:			[Disabled]		
Blue Tooth:			[Disabled]		
F1 Help	↑↓ Select Item	–/+	Change Values		F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu		F10 Save and Exit

Table 38: RF security control sub-menu

RF Security Control Sub-Menu Selections

You can make the following selections on the RF Security Control sub menu.

Features	Options	Description
Wireless LAN	Disabled Enabled	Wireless LAN Control Enabled Wireless function
GPRS	Disabled Enabled	GPRS Control Enabled GPRS function
GPS	Disabled Enabled	GPS Control Enabled GPS function
Blue Tooth	Disabled Enabled	Blue Tooth Control Enabled Blue Tooth function

Table 39: RF security control sub-menu selections

4.11 TPM State Menu

Phoenix TrustedCore(tm) Setup Utility				
Main	**Advanced**	**Security**	**TPM State**	**Boot**
Current TPM State:		Enabled and Activate		Item Specific Help
Change TPM State:		**[No Change]**		Change TPM State
F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Table 40: TPM state menu

TPM State Menu Selections

You can make the following selections on the TPM State Menu.

Features	Options	Description
Change TPM State	No Change Enable & Activate Deactivate & Disable Clear	Change TPM State

Table 41: TMP state menu selections

4.12 Boot Menu

Phoenix TrustedCore(tm) Setup Utility					
Main	**Advanced**	**Security**	**TPM State**	**Boot**	**Exit**

Boot priority order: **1: USB KEY:** 2: USB FDC: 3: USB HDD: 4: IDE CD: 5: IDE HDD: 6: Legacy Floppy Drives 7: PCI SCSI: 8: Excluded from boot order: : USB CDROM: : USB ZIP: : USB LS120: : PCI BEV: : Other USB: : 1394 CDROM	Item Specific Help Keys used to view or configure devices: Up and Down arrows select a device. <+> and <–> moves the device up or down . <f> and <r> specifies the device fixed or removable . <x> exclude or include the device to boot . <Shift + 1> enables or disables a device. <1 – 4> Loads default boot sequence.

F1 Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Table 42: Boot menu

The system will try to boot from device on top then the 2nd and so on. If there are more than one device in each category, only the device on top of sub-menu is able to boot up.

4.13 Exit Menu

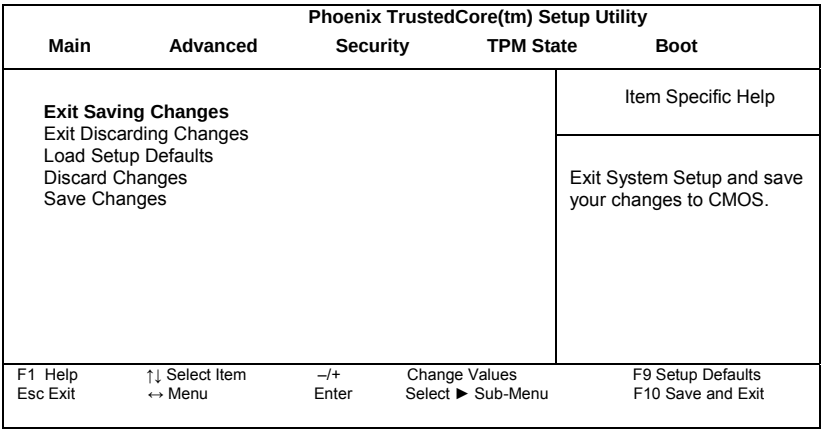


Table 43: Exit menu

Exit Menu Selections

You can make the following selections on the Exit Menu.

Features	Options	Description
Exit Saving Changes	n/a	Exit System Setup and save your changes to CMOS.
Exit Discarding Changes	n/a	Exit utility without saving Setup data to CMOS.
Load Setup Defaults	n/a	Load default values for all SETUP items.
Discard Changes	n/a	Load previous values from CMOS for all SETUP items.
Save Changes	n/a	Save Setup Data to CMOS

Table 44: Exit menu selections

CHAPTER 5

Drivers and Utilities

5 Drivers and Utilities

5.1 Driver

Note: Most device drivers are available in Windows 2000/XP. Only when the default driver does not work properly you need to install the factory bundled drivers. The utility CD includes most drivers of the computer's installed devices. Consult dealer if any driver is missing. Re-install drivers or perform "Driver Update" to replace the Windows default drivers.
Please check readme.txt file on utility CD to get the latest information before starting to install drivers.

5.1.1 Chipset

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click infinst_autol.exe in the directory of **DR8EX-RF8EX-DR8EX\Drivers\Chipset\2kXpVista3264_8.2.0.** then follow the prompt to complete installation.

5.1.2 Graphics card

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click win2k_xp1429.exe in the directory of **DR8EX\Driver\VGA\Intel_945GM\2kXp32** then follow prompt to complete driver installation. Windows 2000/XP may recommend using their driver, but you should confirm changing to the factory bundled driver.
After restart and back to Settings window, choose proper Colors and Screen Area.

5.1.3 Resolution

The table lists typical display modes only. The system also supports standard video modes with lower resolution and color.

Resolution & Color	LCD	RGB	LCD & RGB
640x 480x 16-bit	O	O	O
640x 480x 24-bit	O	O	O
640x 480x 32-bit	O	O	O
800x 600x 16-bit	O	O	O
800x 600x 24-bit	O	O	O
800x 600x 32-bit	O	O	O
1024x 768x 16-bit	O	O	O
1024x 768x 24-bit	O	O	O
1280x 1024x 16-bit	X	O	X
1280x 1024x 24-bit	X	O	X
1280x 1024x 32-bit	X	O	X
1600x 1200x 16-bit	X	O	X
1600x 1200x 24-bit	X	O	X
1600x 1200x 32-bit	X	O	X

Table 45: Resolution and Color

5.1.4 Audio Driver

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click WDM_A400.exe in the directory of **DR8EX\Driver\Audio\2kXp_3264** then follow the prompt to complete installation.

5.1.5 USB 2.0

Windows WIN2000/WINXP Driver Installation:

You will not need to install USB 2.0 drivers if you work with Windows 2000/XP.

5.1.6 Touch Screen

Windows WIN2000/WINXP Driver Installation:

Enter BIOS Setup and set COM1 port as “TTL1”. (COM1 has multiple connectivity so it’s necessary to setup. Optional COM4 may be configured as touch screen and does not need BIOS setup.)
Insert the Driver CD into the CD-ROM. Click **Setup.exe** in the directory of **DR8EX\Driver\Touchscreen\DP9000\2kxpVista3264\ PM..Universal…v1.0.0.8** then follow the prompt to complete installation.

5.1.7 PCMCIA

Windows WIN2000/WINXP Driver Installation:

The driver is automatically installed under Windows.

5.1.8 PCIe Gigabit LAN

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click **Setup.exe** in the directory of **DR8EX\Drivers\PCIe_1G Lan\2kXp3264\RTL8168_ 8101E_664** then follow the prompt to complete installation.

5.1.9 WLAN

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click **v11.1.0.5_xp32.exe** in the directory of **DR8EX\Driver\PCIe_Intel WLAN\2kXp32** then follow the prompt to complete installation.

5.1.10 Bluetooth

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click **setup.exe** in the directory of **DR8EX\Drivers\BLU-BC4\2kXp\BlueSoleil_2.1.3.0_Release_060429** then follow the prompt to complete installation.

5.1.11 Modem

Windows WIN2000/WINXP Driver Installation:

Insert the Driver CD into the CD-ROM. Click **setup.exe** in the directory of **DR8EX\Driver\MDC\mdc_w2kxp** then follow the prompt to complete installation.

5.1.12 GPRS/GSM

Windows WIN2000/WINXP Driver Installation:

Click **Control Panel → System → Hardware → Device Manager**, right click GPRS/GSM device and choose Update driver and follow the instructions. If you want to chose the directory yourself enter **DR8EX\Drivers\GPRS_GSM Siemens MC75.**

5.2 Utilities

5.2.1 Wireless Manager

For flight safety and power saving reason, there is a utility provided easily to enable/disable RF devices of Wireless LAN/GPRS/GPS/Bluetooth in the run time. Insert the Driver CD into the CD-ROM. Click setup.exe in the directory of Utilities\WirelessManager then follow the prompt to complete installation.

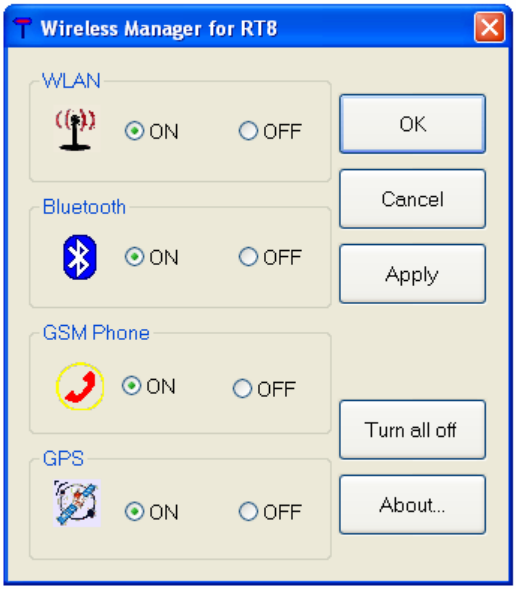


Figure 32: Wireless Manager

Input Management Services

Note:
This utility is valid for only Windows XP and/or Windows 2000.

Install:
Run setup.exe from the directory of “Input Management Services”, and then follows the prompt to complete.

Uninstall:

1. Left-click the icon and then launch “Exit”
2. Run “Uninstall” from the path of “Start/All Programs/Input Management Services”
3. Do not uninstall form Add/Remove Program on Control Panel

Icon Function:

Left-click the icon , there are 5 items:
1. Function Key Manager
2. On-Screen Keyboard
3. Launch Function key manager at startup
4. Launch On-Screen keyboard at logon
5. Exit

As the title is named, you could activate Function Key Manager and/or On- Screen Keyboard.
In addition, if you activate “Launch Function key manager at startup”, will be on the task menu automatically after the system is launched. If you activate “Launch On-Screen keyboard at logon”, On-Screen keyboard will appear on the desktop automatically when you logon, however, On-Screen keyboard will disappear after password is input and enter the state of authentication.

Launch:
Launch Function Key Manager, and this window will be shown:

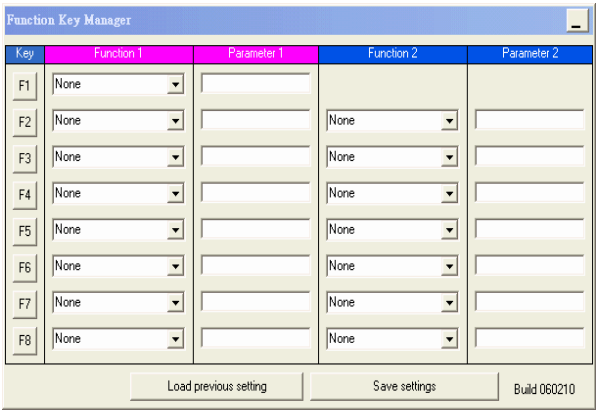


Figure 33: Input Management Services main menu

As “Function Key Manager” is titled, there are eight function keys (from F1 to F8) which can be defined by users. Each function key has 10 built-in functions, “Toggle function 2” is only for “F1” in “Function 1”, and “None” is for default.

1. Open / Execute a file
2. Open a URL in default browser
3. Replace with another key
4. Mouse cursor move to
5. Simulate mouse button click
6. Change display output
7. Rotate screen
8. Change desktop background color
9. Change desktop wallpaper
10. Launch On-Screen Keyboard
11. Toggle function 2
12. None

Some proper parameters have to be added to make functions working correctly. Please follow these guides. Click the left button in the blank of parameter column, to set the parameter.

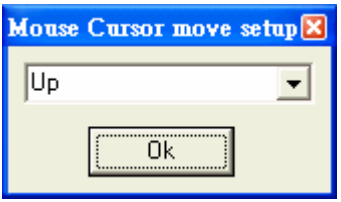
1. Open / Execute a file
Select a file from the pop-up window.
Set the proper file type if necessary, Batch File (*.bat) is the default.

2. Open a URL in default browser
Input the address of a web site, e.g., www.roda-computer.com

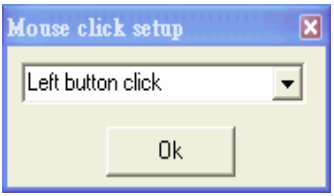
3. Replace with another Key
The single key or combination key can be used. For example, press "Ctrl" and" "x" simultaneously, {Ctrl}x will be shown in the parameter blank. It means the combination key of Ctrl and x.

However, some combination keys are excluded. For example, "Ctrl+Alt+Del", "Ctrl+Esc" and "Alt+Tab"; "Ctrl+Alt+Del" just jumps to run REAL "Ctrl+Alt+Del" right away, "Ctrl+Esc" goes to Start Menu, "Alt+Tab" will pop up a window for selecting the working window.

4. Mouse cursor move to
Used to define the four moving directions of the mouse cursor. "Up", "Down", "Left" and "Right" are the candidates

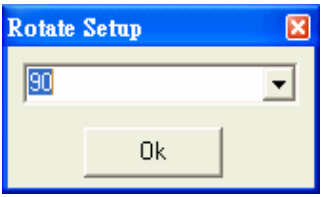


5. Simulate Mouse Button Click
Used to define two button clicks of the mouse.
"Left button click" and "Right button click" are alternatives.

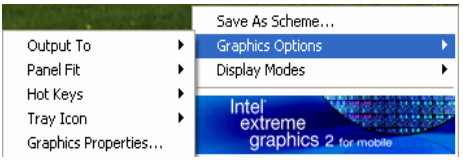


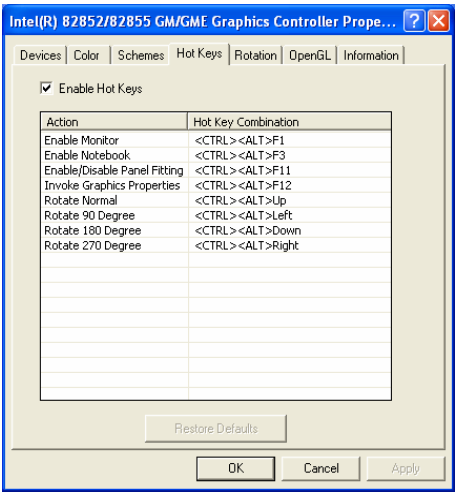
6. Change display output
Switch display output among LCD, CRT and DVI. Just only one single mode can exist.
“Enable External Monitor”, “Enable Notebook Display”, and “Enable External
DVI” are the candidates.
Please connect the external monitor and or external DVI before launching this function.

7. Rotate screen
The rotate setup provides four choices: Normal, 90, 180 and 270.

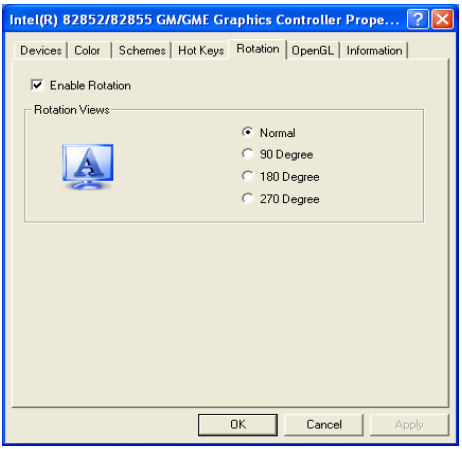


Please make sure Intel extreme graphics 2 is installed and this icon will be on the task menu.
Activate the “Graphics Properties …” from “Graphics Options”.





In the “Rotation”, activate “Enable Rotation” and set the “Rotation Views” to
“Normal”.



8. Change Desktop Background Color
Used to change background color to make display more readable in the day or night.
Select a color from the pop-up color palette.

9. Change desktop wallpaper
Used to change wallpaper to make display more readable in the day or night. Select a file from the pop-up window.
Set the proper file type if necessary, Bitmap Files (*.bmp) is the default.

10. Launch On-Screen Keyboard
On–Screen Keyboard is a utility that displays a virtual keyboard on the computer screen. It is especially useful for tablet PC users, users can type data by using a pointing device or joystick. You can toggle this function key to enable/disable the on-screen keyboard

11. Toggle function 2
This is only for “F1” in “Function 1” and no parameter has to be added.
You can toggle this “F1” to launch the function key between “Function 1” and “Function 2”. The top banner of activated area will be changed into pink and the icon will show for “Function 1” or for “Function 2”. When you have set this “Toggle function 2”, you could get additional 7 function keys in “Function 2”. In other words, 7 function keys in “Function 1” and 7 function keys in “Function 2” make 14 function keys in this Function Key Manager.

CHAPTER 6

Maintenance and Service

6 Maintenance and Service

6.1 Cleaning

ALWAYS turn OFF the power, unplug the power cord and remove the battery before cleaning. The exterior of the system and display may be wiped with a clean, soft, and lint-free cloth. If there is difficulty removing dirt, apply non-ammonia, non-alcohol based glass cleaner to the cloth and wipe. An air gun is recommended for cleaning water and dust. For salty water please clean with fresh water then blow-dry with an air gun. Be sure not to turn the computer up side down while there is water being applied.

6.2 Troubleshooting

Should the computer fail to function properly, the troubleshooting steps below may be followed.

- Check AC/vehicle adapter, battery, and the power source.
- Minimize the configuration, i.e., remove extra peripherals and devices.
- Remove the modules one by one (HDD, CD-ROM, FDD, Battery, etc.).
- Remove the software suspected.
- Set BIOS fail-safe default.
- Re-install operating system and application software.

6.3 Service

If troubleshooting steps are unsuccessful, consult your dealer for service.
If they can not help you please call roda Service Center.

Service address: roda computer Center Bredenhop 20 32609 Hüllhorst Phone.: +49 5744-944 470 Fax: +49 5744-944 475 E-Mai: support@roda-computer.com	Service: Mon – Thu 8:30 am - 12:30 pm & 1:00 pm - 4:30 pm Fri 8:30 am - 12:30 pm & 1:00 pm - 3:00 pm

Note: The roda Service Center needs a detailed description of the problem and the serial number of the device.

If it is necessary to send in your computer for repairs, you can download a service waybill (Service Supply Note) on the roda homepage (www.roda-computer.com), which you have to fill in.

6.3.1 Service Supply Note

Service - Begleitschein

Bitte prüfen Sie vor der Rücksendung gründlich, ob tatsächlich ein Defekt vorliegt!
Sollte unsererseits an dem eingesandten Gerät kein Fehler festgestellt werden, berechnen wir eine Test- und Bearbeitungspauschale, die 10% des Warenwertes, mindestens aber € 65,- netto beträgt

roda computer GmbH
Service-Abteilung
Bredenhop 20

32609 Hüllhorst

Absender: Kd.-Nr.:
Firma:
Strasse:
PLZ/Ort:
Tel: Fax:
Datum der Rücksendung:

Vom roda - Geschäftspartner auszufüllen

Garantiefall (Anerkennung nur mit Nachweis) Kostenpflichtig

Folgende Geräte werden zurückgesandt:

Anzahl | roda-Artikel Nr. | Rechnungs-Nr. DR R | Rechnungs - Datum

Artikel: Seriennummer:

Bitte nennen Sie hier ausführlich den Grund der Rücksendung: (defekt ist keine Fehlerbeschreibung!)

Mitgeliefertes Zubehör

Ansprechpartner für Rückfragen (+Durchwahl): eMail-Adresse des Ansprechpartners:

Von roda computer auszufüllen

Mitgeliefertes Zubehör:
Verpackung außen:
Verpackung innen:
Beschädigungen:
Bemerkungen:

Datum: ___.___.___ Bearbeitet: _____ Werkstattauftrag/KV:

EK_LH_7.2.3_5_03

Figure 34: Service Supply Note (Geman Version)

Include this sheet with the following information:

- Name
- Address
- Serial number, Customer number, Article number
- Place and date of purchase or the original invoice number

- Date of failure
- A DETAILED description of the problems you have encountered
- A list of the hardware/ software configuration, if applicable

6.3.2 Downloads

Check our website (www.roda-computer-com) for downloads:

- Updates
- Drivers
- Manuals
- Service Supply Note

Annex

ANNEX

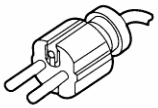
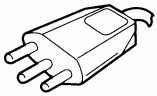
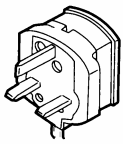
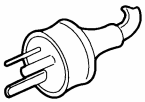
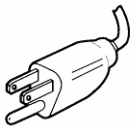
Annex

Annex A: List of abbreviations

A	Ampere (unit)
AC	Alternating Current
ACPI	Advanced Configuration and Power Management Interface
APM	Advanced Power Management
ATA	Advanced Technology Attachment
BIOS	Basic Input Output System
C	Celsius (unit)
CDMA	Code Division Multiple Access
CD-ROM	Compact Disk Read only Memory
CE	Conformité Européene
COM	Communications Port
CMOS	Complementary Metal Oxide Semiconductor
CPU	Central Processing Unit
CRT	Cathode Ray Tube
DC	Direct Current
DL	DockLite
DMA	Direct Memory Access
DOS	Disc Operation System
D-sub	D-subminature (auch als Sub-D verwendet)
DVD	Digital Versatile Disc
DVI	Digital Visual Interface
EMV	Elektro-Magetische Verträglichkeit
EN	Europäische Norm
F	Fahrenheit (unit)
FCC	Federal Communication Commision
FDD	Floppy Disc Drive
GB	Giga-Byte (unit)
Gbit/s	Giga-Bit per second (unit)
GHz	Giga-Hertz (unit)
GND	Ground
GPS	Global Positioning System
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
H	Hertz
HDD	Hard Disk Drive
HSDPA	High Speed Downlink Packet Access

IDE	Integrated Drive Electronics
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
I/O	Input/Output
IP	Ingress Protection
KFZ	Kraftfahrzeug
kHz	Kilo-Hertz (unit)
kPA	Kilo-Pascal (unit)
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
mAh	Milliampere Hour (unit)
MB	Mega-Byte (unit)
Mbit/s	Mega-Bit per second (unit)
MHz	Mega-Hertz (unit)
PC	Personal Computer
PCI	Peripheral Component Interconnect
PCMCIA	Personal Computer Memory Card Industry Association
POST	Power On Self Test
PSIG	Pounds-Force per Square Inch
PS/2	Peripherie Standard Bus
RAM	Random Access Memory
RJ(45)	Registration Jack(45)
RS(232)	Recommended Standard(232 etc.)
RTC	Real Time Clock
SSD	Solid State Disc
SU	Stand Unit
TÜV	Technischer Überwachungs Verein
UL	Underwriters Laboratories
USB	Universal Serial Bus
V	Volt (unit)
VGA	Video Graphics Adapter
W	Watt (unit)
WLAN	Wireless LAN

Annex B: Table of power supply connectors for different countries

Version	Country/region	Technical data
	Europe	220V, 50Hz, 6A
	Switzerland	220V, 50Hz, 6A
	Great Britain	240V, 50Hz, 6A
	Australia	240V, 50Hz, 6A
	North America	120V, 60Hz, 7A

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Annex E: Material Safety Data Sheet Battery

Includes certificate according to UN Manual of Test Criteria, Part III, Subsection 38.3 (Test T1-T8).

Manufacturer and Product:

Manufacturer	J.S POWER CO., LTD.
Product	Lithuim Ionen Battery DR8/DR7 for Panther DR886/DR786
Capacity	4800mAh
Voltage	11.1V
Type	Lithium ion

Dangerous Goods Classification Status:

According to the 50th Edition of the Dangerous Goods Regulation effective January 2009, transporting a lithium ion battery is not subject to Dangerous Goods Regulations if the total Watt-Hour rating is no more than 100Wh.

Model	Total Watt-Hour rating	Remarks
DR8/DR7	53.28 Wh	Not dangerous goods

Hazardous and Toxicity class:

Class Name	Not applicable for regulated class
Hazard	It may cause heat generation or electrolyte leakage if battery terminals contact with other metal. Electrolyte is flammable. In case of electrolyte leakage, move the battery from fire immediately.
Toxicity	Vapor generated from burning batteries may make eyes, skin and throat irritiate.

Handling and Storage:

When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that single batteries are not mixed together.
Do not let water penetrate into packaging boxes during their storage and transportation.
The batteries will be stored at room temperature, charged to about 30~50% of capacity.
Do not store the batteries in places of the high temperature exceeding 35 degree C or under direct sunlight or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, water drop or not the store it under frozen condition.
Please avoid storing the battery in the places where it is exposed to the static electricity. It may cause the protection circuit to be damaged.

Stability and Reactivity:

Since batteries utilize a chemical reaction they are actually considered a chemical product. As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

Toxicological Information:

Acute toxicity	Oral (rat) LD50>2g/kg (estimated)
Irritation	Irritating to eyes and skin
Chronic Toxicity	Not specified

Ecological Information:

When properly used or disposed, this product do not present environmental hazard.

Disposal Considerations (Precaution for Recycling):

When the battery is worn out, dispose it under the ordinance of each local government or the law issued by relating government. Disposal of the worn-out battery may be subjected to Collection and Recycling Regulations.

Transport Information:

All Lithium ion and lithium polymer cells and bateries must be tested in accordance with the „UN Manual of Tests and Criteria, Part III, Subsection 38.1 (Test T1-T8) 2009“.
See Dangerous goods rating. The battery can be transported on aircrafts.
Any person preparing or offering cells or batteries for transport must receive adequate instruction on these requirements commensurate with their responsibilities.

Regulatory Information:

International Conventions	*Air – IATA (International Air Transport Association) Dangerous Goods Regulations (DGR) 50th Edition Effective January 2009 *Air – ICAO (International Civil Aviation Organization) Technical Instructions for the safe transport of dangerous goods by air. *Sea – IMDG (International Maritime Dangerous Goods) regulations *Land – ADR (Strasse), RID (Schiene) United Nations „Recommendations on the Transport of Dangerous Goods Manual of Tests Criteria, Part III, Subsection 38.3, (Tests T1-T8) 2009. United Nations “Recommendations on the Transport of Dangerous Goods, Model Regulations” United Nations “Recommendations on the Transport of Dangerous Goods, Manual of Tests Criteria”
USA	„Code of Federal Regulations (49CFR Ch. 1 & 173-185) IATA und ICAO Provision A45 und IMO Special Provision 188

IATA T1-T8

Nr.	Test Items	Results
T1	**Altitude Simulation** – Stored batteries at a pressure of 11.6kPa or less for at least six hours at ambient temperature(20±5°C).	**Pass** – no mass loss, no leakage, no venting, no disassembly, no rupture and no fire
T2	**Thermal Test** – Stored batteries for at least six hours at a test temperature equal to 75±2°C, followed by storage for at least six hours at a test temperature equal to -40±2°C. The maximum time interval between test temperature extremes was 30 minutes. The procedure was repeated 10 times, after which all test batteries were stored for 24 hours at ambient temperature (20±5°C).	**Pass** – no mass loss, no leakage, no venting, no disassembly, no rupture and no fire

Nr.	Test Items	Results
T3	**Vibration** – Batteries were firmly secured to the platform of the vibration machine without distorting the cells in such am manner as to faithfully transmit the vibration. The vibration was a sinusoidal waveform with a logarithmic sweep between 7Hz and 200Hz and back to 7Hz traversed in 15 minutes. This cycle was repeated 12 times for a total of 3 hours for each three mutually perpendicular mounting positions of cell. One of the directions of vibration was perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7Hz a peak acceleration of 1gη is maintained until 18Hz is reached. The amplitude is then maintained at 0.8mm and the frequency increased until a peak acceleration of 8gη occurs (approximately 50Hz). A peak acceleration of 8gη is then maintained until the frequency is increased to 200 Hz.	**Pass** – no mass loss, no leakage, no venting, no disassembly, no rupture, no fire
T4	**Shock** – Batteries were secure to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Each battery was subjected to a half-sine shock of peak acceleration of 150gη and pulse duration of 6 milliseconds. Each battery were subjected to three shocks in the positive direction followed by there shocks in the negative direction off each of three mutually perpendicular mounting positions of the cell for a total of 18 shocks.	**Pass** – no mass loss, no leakage, no venting, no disassembly, no rupture and no fire
T5	**External Short Circuit** – Batteries tested were temperature stabilized so that its external case temperature reaches 55±2°C and then the battery was subjected to a short circuit condition with a total external resistance of less then 0.1ohm at 55±2°C. This short circuit condition is continued for at least one hour after the battery external case temperature has returned to 55±2°C. The battery must be observed for a further six hours for the test to be concluded.	**Pass** – no mass loss, no leakage, no venting, no disassembly, no rupture and no fire

Nr.	Test Items	Results
T6	**Impact (for cells only)** – The test sample cell or component cell was placed on a flat surface. A 15.8mm diameter bar was placed across the centre of the sample. A 9.1kg mass was dropped from a height of 61±2.5cm onto the sample.	**Pass** – external temperature does not exceed 170°C and there is no disassembly and no fire within six hours of the test
T7	**Overcharge** – the charge current was set at twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test was as follows: -when the manufacturers charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. -when the manufacturer's recommended charge voltage is more then 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.	**Pass** – no disassembly and no fire within seven days of the test
T8	**Forced Discharge (for cell only)** – Each cell was forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer.	**Pass** – no disassembly and no fire within seven days of the test